DOE/EH-0391

Environmental Guidance

Incorporating Ecological Risk Assessment into Remedial Investigation/Feasibility Study Work Plans

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U.S. Department of Energy
Office of Environmental Guidance
RCRA/CERCLA Division, EH-231
Washington, D.C.

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United States Government **Department of Energy**

memorandum

DATE: July 5, 1994

REPLY TO ATTN OF: Office of Environmental Guidance(EH-231):Bascietto:6-7917

SUBJECT: Incorporating Ecological Risk Assessment into Remedial Investigation/Feasibility Study (RI/FS) Work Plans

TO: Distribution

The purpose of this memorandum is to provide Department of Energy (DOE) Program Offices and Field Organizations with a copy of an environmental guidance document entitled: *"Incorporating Ecological Risk Assessment Into Remedial Investigation/ Feasibility Study Work Plans."* This guidance is directed primarily to DOE and DOE contractor personnel responsible for planning, managing and communicating the results of work plans for the investigation of environmental restoration sites requiring an evaluation of potential ecological risks.[1] Notwithstanding, the attached document provides guidance to all personnel interested in gaining a better understanding of ecological risk assessment and accompanying project management considerations.

A graphic approach to environmental guidance consisting of flowcharts and step-by-step instructions is portrayed in the attached. Following the step-wise instructions in the sequence presented provides a logical, systematic approach to plan, manage and execute a work plan that meets the general ecological evaluation requirements of an RI/FS, as currently delineated in relevant Environmental Protection Agency (EPA) guidance and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). Emphasis is placed on early planning and frequent communication with risk assessors, risk managers and other stakeholders; the goal being timely convergance on an agreed understanding of the important sources of hazard, pathways of exposure and environmental receptors (i.e., the conceptual model), and to develop data quality objectives and agree upon the endpoints for the risk assessment.

The guidance deliberately avoids advocating any particular ecological risk assessment methodology be used, although a "tired" approach is taken by which increasingly complex information can be evaluated when appropriate. Several well accepted ecological risk assessment references are provided in order that users can gain access to useful ecological risk assessment information and methodological tools. The guidance also highlights important project management considerations that are geared toward meeting the EPA's general expectations for ecological risk assessments performed pursuant to the

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[1]The information contained herein provides specific guidance on planning managing and communicating the baseline ecological risk assessment discussed in Note B, module 2.4 of *"Remedial Investigation/Feasibility Study (RI/FS) Process, Elements and Techniques"* (DOE/EH-9400-7658; December 1993), jointly issued by the Office of Program Support, Regulatory Compliance Division (EM-431) and Office of Environmental Guidance RCRA/CERCLA Division (EH-231).

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). EPA has indicated that CERCLA risk assessment guidance will likely be useful in fulfilling ecological evaluation needs under the Resource Conservation and Recovery Act (RCRA) Corrective Action program. The principles of ecological risk assessment and project management that form the basis of this guidance are those espoused by EPA, primarily in two Agency guidance documents: 1) "Risk Assessment Guidance for Superfund, Volume II, Environmental Evaluation Manual" (EPA/540/1-89/001); and 2) "Framework for Ecological Risk Assessment" (EPA/630/R-92/001).

Included as appendices to the attached are three annotated work plans: 1) the Ecological Assessment Work Plan; 2) an Ecological Field Sampling Plan; and 3) an Ecological Quality Assurance Project Plan. References to these appendices are included at selected points in the guidance when it is necessary to illustrate how particular topics can actually be written into the work plan. Users are encouraged to consult the appended work plans in order to receive maximum benefit from this guidance document.

Questions concerning ecological risk assessment at environmental restoration sites in general, or the attached environmental guidance document in particular, may be directed to John Bascietto of my staff at (202) 586-7917.

Thomas T. Traceski
Director, RCRA/CERCLA Division
Office of Environmental Guidance

Attachment

INCORPORATING ECOLOGICAL RISK ASSESSMENT into REMEDIAL INVESTIGATION/FEASIBILITY STUDY WORK PLANS

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Prepared by

U.S. DEPARTMENT OF ENERGY
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RCRA/CERCLA DIVISION
(EH-231)
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ACKNOWLEDGMENTS

This guidance document was developed by the U.S. Department of Energy's (DOE's) Office of Environmental Guidance, RCRA/CERCLA Division (EH-231), with the assistance and technical support of the Environmental Assessment Division of the Argonne National Laboratory (ANL). The DOE project leader was Mr. John Bascietto. The ANL team was headed by Dr. Edwin Pentecost and Mr. William S. Vinikour. The project team would like to thank Drs. Ihor Hlohowskyj, John Krummel, and Kirk LaGory of ANL; and the many government and contractor reviewers from DOE Operations and Project Offices and National Laboratories who contributed insight born of experience in the preparation of work plans and the performance of ecological risk assessments. Special thanks is due to Mr. James Vercellone of ANL for preparation of figures and module diagrams. This document was reviewed by the DOE Risk-Based Standards Project's Ecological Risk Assessment Task Group. Questions concerning document content or use should be directed to Mr. John Bascietto, U.S. Department of Energy, Office of Environmental Guidance, EH-231 at (202) 586-7917, or electronic mail to john.bascietto@hq.doe.gov.

NOTATION

ARAR	applicable or relevant and appropriate requirement
BTAG	Biological Technical Assistance Group
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
DOE	U. S. Department of Energy
EPA	U. S. Environmental Protection Agency
ERPM	environmental restoration program manager (DOE)
FFA	Federal Facility Agreement
FS	feasibility study
FWS	U. S. Fish and Wildlife Service
NCP	National Contingency Plan
NEPA	National Environmental Policy Act
NPL	National Priorities List
NRDA	natural resource damage assessment
ORNL	Oak Ridge National Laboratory
QA	quality assurance
QAPP	quality assurance project plan
QA/QC	quality assurance/quality control
PCB(s)	polychlorinated biphenyl(s)
RAGS II	Risk Assessment Guidance for Superfund, Volume II Environmental Evaluation Manual
RCRA	Resource Conservation and Recovery Act of 1976
RI	remedial investigation
RI/FS	remedial investigation/feasibility study
SAP	sampling and analysis plan
SARA	Superfund Amendments and Reauthorization Act of 1986